M9H / M9HC



Double-Balanced Mixer

Rev. V3

Features

- LO 10 TO 1600 MHz
- RF 10 TO 1500 MHz
- IF 0 TO 600 MHz
- LO DRIVE: +20 dBm (NOMINAL)
- HIGH INTERCEPT POINT: +30 dBm TYP. (UPCONV.)
 +24 dBm TYP. (DOWNCONV.)

Description

The M9H is a double balanced mixer, designed for use in military, commercial, and test equipment applications. The design utilizes Schottky ring quad diodes and broadband ferrite baluns to attain excellent performance. This mixer can also be used as a phase detector and/or bi-phase modulator since the IF port is DC coupled to the diodes. Environmental screening is available to MIL-STD-883, MIL-STD-202, or MIL-DTL-28837, consult factory.

Product Image



Ordering Information

| Part Number | Package | |
|-------------|-------------------|--|
| М9Н | TO-8 | |
| М9НС | SMA Connectorized | |

Electrical Specifications: $Z_0 = 50\Omega$ Lo = +20 dBm (Downconverter Application only)

| Parameter | Tost Conditions | | Typical | Guaranteed | |
|--|--|----------------------|--------------------------|--------------------------|--------------------------|
| Parameter Test Conditions | | Units | 25°C | 0º to 50°C | -54º to +85ºC |
| SSB Conversion Loss & SSB Noise Figure (max) | fR=0.02 to 0.4 GHz, fL=0.01 to 0.6 GHz, fl=0.002 to 0.2GHz fR=0.01 to 1.5 GHz, fL=0.01 to 1.6 GHz, fl=0.001 to 0.6GHz fl=0.002 to 0.2 GHz fl=0.001 to 0.6 GHz | dB dB dB dB | 7.0 8.0 8.5 9.0 | 8.0 9.0 9.0 9.5 | 8.3 9.3 9.3 9.8 |
| Isolation, L to R (min) | fL = 0.01 to 0.4 GHz fL = 0.4 to 1 GHz fL = 1 to 1.5 GHz | dB dB dB | 35 30 22 | 28 23 20 | 27 22 19 |
| Isolation, L to I (min) | fL = 0.01 to 0.4 GHz fL = 0.4 to 1 GHz fL = 1 to 1.5 GHz | dB dB dB | 40 22 18 | 28 16 13 | 27 15 12 |
| Isolation, R to I (min) | fL = 0.01 to 1 GHz fL = 1 to 1.5 GHz | dB dB | 20 10 | | |
| 1 dB Conversion Compression | fL @ +20 dBm | dBm | +15 | | |
| Input IP3 | | dBm dBm | +30 +24 | | |

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

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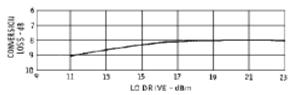


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Typical Performance Curves

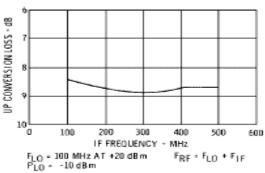
Conversion Loss vs. LO Drive



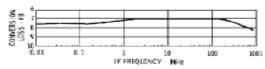
F_{RF} = 1000 MHz AT -10 48 m

 $F_{\rm L,0} \approx 1030~{\rm MHz}$

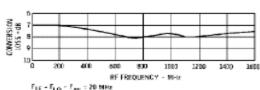
Upconversion Loss vs. Frequency



Conversion Loss vs. Frequency



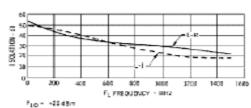
Fpc - 1000 MHz AT -00 dilm P_{LO} = +20 d§ m

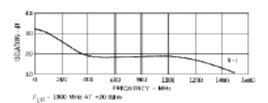


F_{1F} - F_{LO} - F_{EF} = 20 MHz P_{RF} + -10 dE n

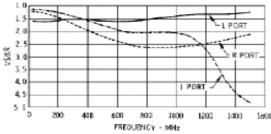
PLO ~ +20 dilm

Isolation vs. Frequency





VSWR



PRF - P | F - - 10 dBm P_{LO} + +2П ¢Вm F_{LO} - 1000 инг

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PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are

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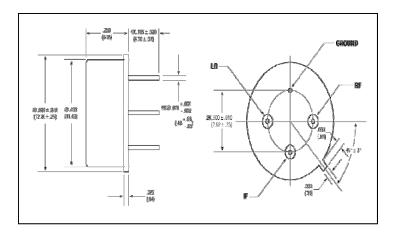
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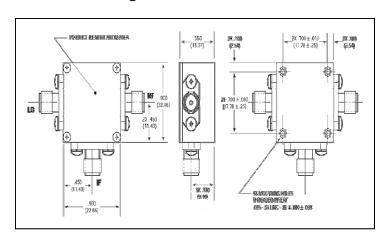
Absolute Maximum Ratings

| Parameter | Absolute Maximum | | |
|-----------------------|---|--|--|
| Operating Temperature | -54 C to +100°C | | |
| Storage Temperature | -65°C to +100°C | | |
| Peak Input Power | +23 dBm max @ +25°C dBm max @ +100°C | | |
| Peak Input Current | 100 mA DC | | |

Outline Drawing: TO-8



Outline Drawing: SMA Connectorized



Solutions has under development. Performance is based on engineering tests. Specifications are

typical. Mechanical outline has been fixed. Engineering samples

Commitment to produce in volume is not gui

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